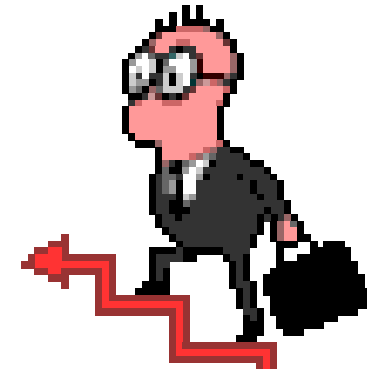


Test Improvement with TMMi

Process Improvement for Present and Future

Erik van Veenendaal



Challenge

- Increasing
- Amount of production
- Number of defects every €
- # Defects
- Defects in the last 10
- Deadlines
- Testing



PAROLE:
niemals aufgeben



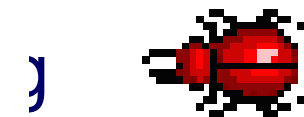
software wordt
foutloos'

naal één bug
luizend regels

Computable, Sept. '08

s)
as doubles

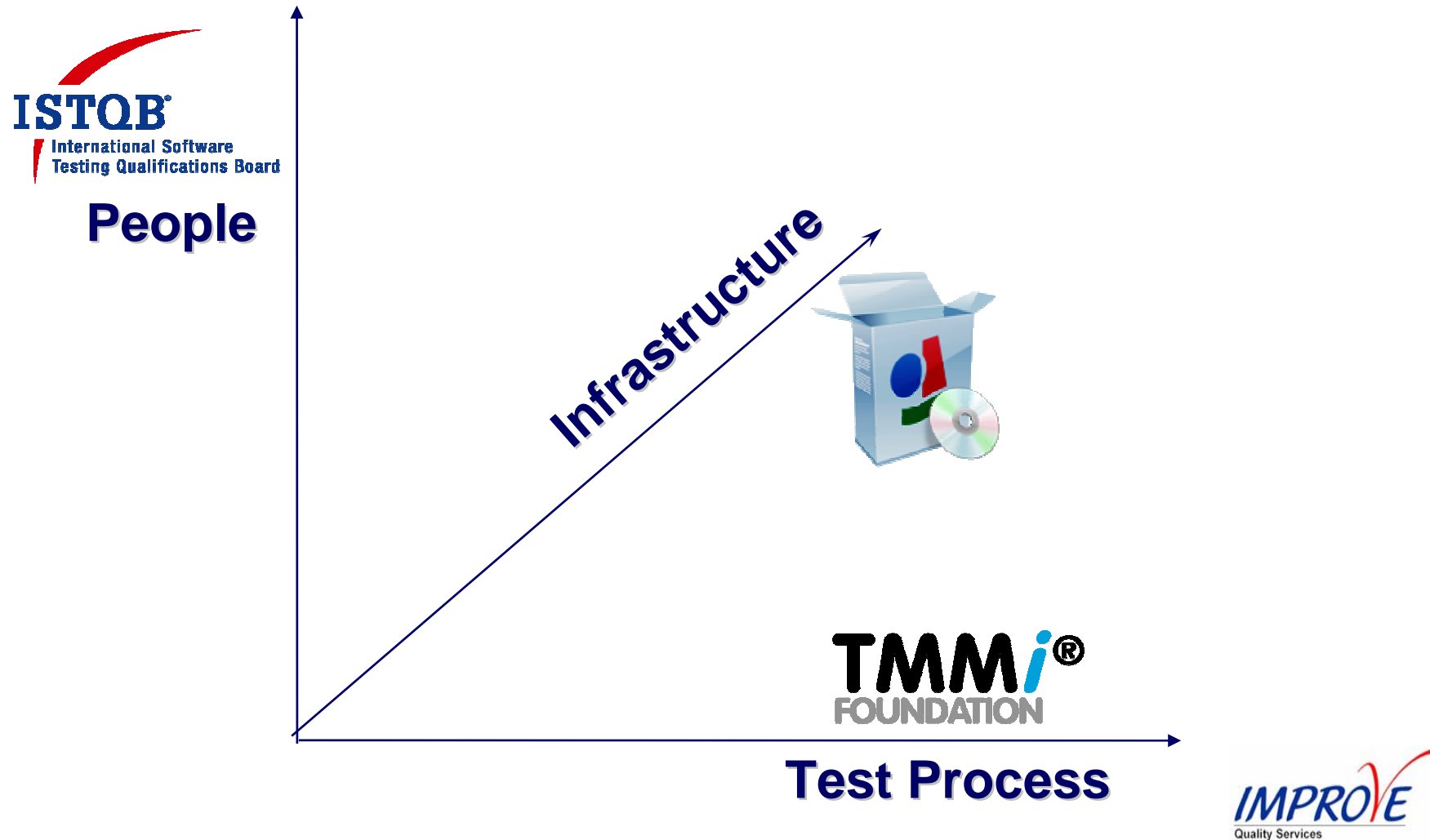
ant in the



st costs

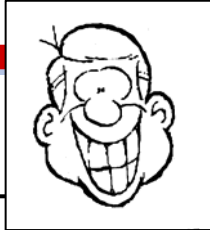


Test Improvement Directions



People Skills

via (exchanging) Practical Experiences, Coaching and (formal) Training



Test knowledge

- Test principles
- Techniques
- Tools, etc.



IT knowledge

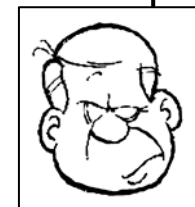
- Software development
- Requirements (**IREB**)
- Configuration mgt.

Domain knowledge

- Business process
- User characteristics

Soft skills

- Communication
- Critical mindset
- Presentation & reporting



Trends in Software Quality

CMM(I) Maturity level	Design Faults / KLOC (Keene)	Delivered Defects / FP (Jones)	Shipped Defects / KLOC (Krasner)	Relative Defect Density (Williams)	Shipped Defects (Rifkin)
5	0,5	0,05	0,5	0,05	1
4	1	0,14	2,5	0,1	5
3	2	0,27	3,5	0,2	7
2	3	0,44	6	0,4	12
1	5-6	0,75	30	1,0	61



Readiness for Test Improvement

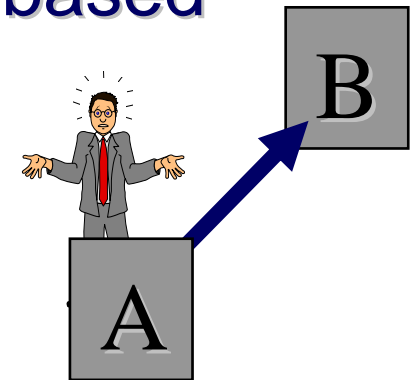
- Some fundamental practices available
 - Requirements documented and managed
 - Project planning exists
 - Configuration management
- Management “needs” / supports better testing
 - Quality is important enough
- A budget for process improvement
- or reverse quality push.....!!



TMMi model



- Test Maturity Model (TMM) Framework
 - Illinois Institute of Technology - CMM based
 - TMMi Sources
 - CMMI, ISTQB, TMM, IEEE, TPI
 - Starting points
 - Staged representation, CMMI structure
 - Independent or in combination with CMMI
- TMMi released January 2008



TMMi process areas by level

Helps to set priorities
and focus the tpi process

5 : Optimization

- Test process optimization
- Quality control
- Defect prevention

4 : Management and measurement

- Software quality evaluation
- Test measurement programme
- Advanced reviews

3 : Integration

- Software test organization
- Test training program
- Test life cycle and integration
- Non-Functional testing
- Peer Reviews

± 1 year

2 : Managed

- Test policy and strategy
- Test planning
- Test monitoring and control
- Test design and execution
- Test environment

± 2 years



IMPROVE
Quality Services

Certification



- Requirements defined regarding
 - Assessment process (TAMAR) based on ARC (B/C) and ISO 15504
 - Lead-Assessor and Assessor
- Organizations and persons to be accredited by the TMMi Foundation
- Register of (lead) assessors
- Formal TMMi Certification possible



Lead Assessor / Assessor

	Lead assessor (formal assessments)	Assessor (informal assessments)
Testing	> 5 years Multiple levels & domains ISTQB Advanced	> 3 years Multiple levels & domains ISTQB Foundation
Test Process Improvement	> 2 years (2 years SPI = 1 year TPI)	> 1 years
TMMi	Training Practical experience	Training Practical experience
Assessments	Training 20 days practical experience	Training 10 days practical experience

Level 2 : Managed

ONE WAY 

- Test Policy and Strategy
- Test Planning
- Test Monitoring and Control
- Test Design and Execution
- Test Environment

*Project oriented
process areas*



**TMMi level 2
Lead time
reduction !!**

Ensures CMMI compliance
Verification & Validation

IMPROVE
Quality Services

Definition Testing

based on business policy

to provide visibility on existing risks of software products

to contribute to reducing defects

to contribute to released software products

....

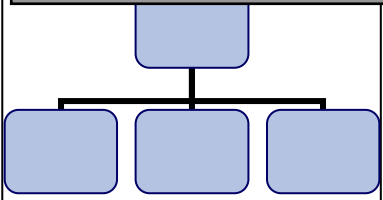
Mission / Ambition

Test targets



Employees

Organization

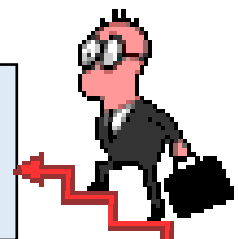


Test process

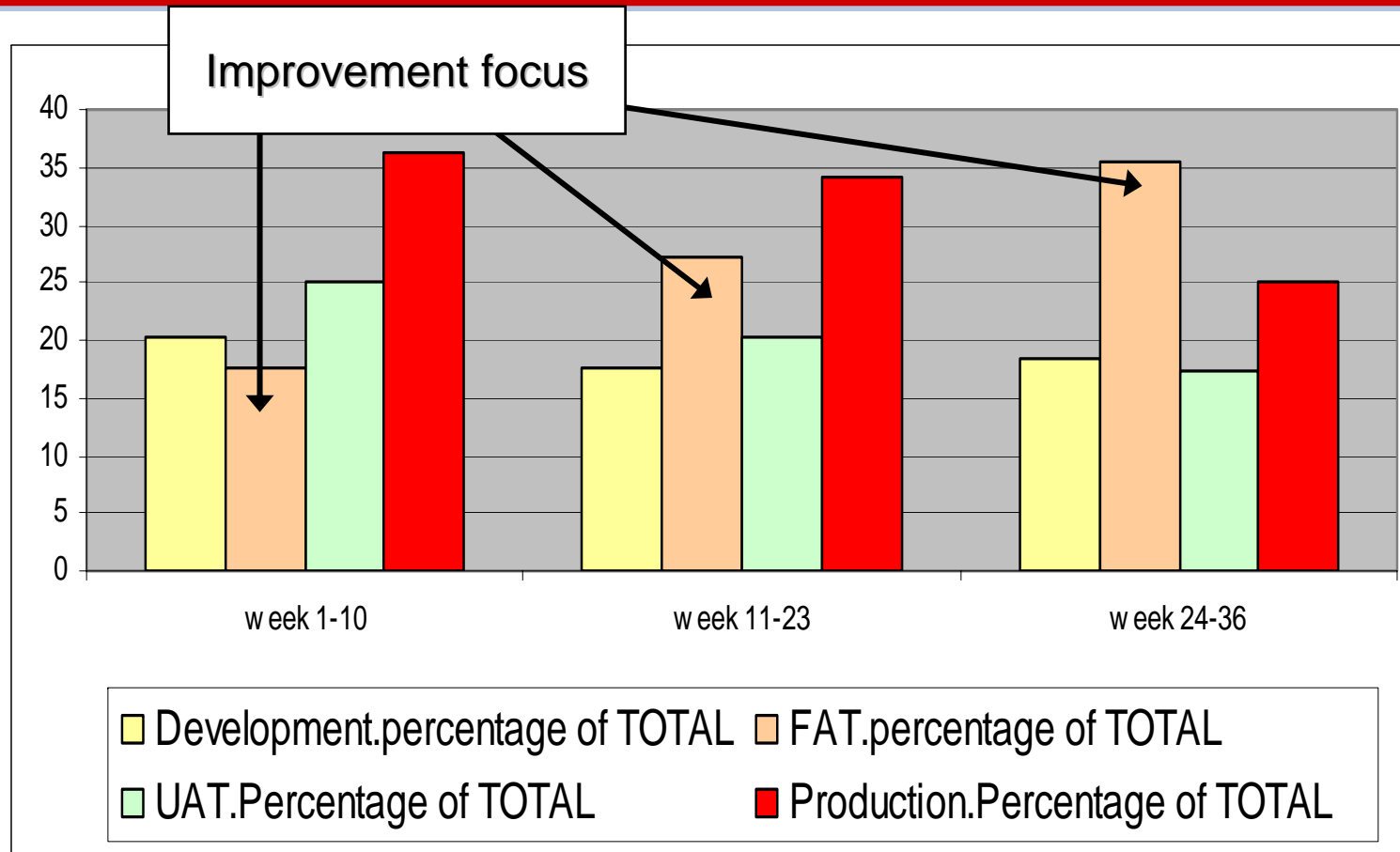
Customers



Test Process Improvement - objectives, performance indicators, model



Example Performance Indicator



“this is what we are doing !!”

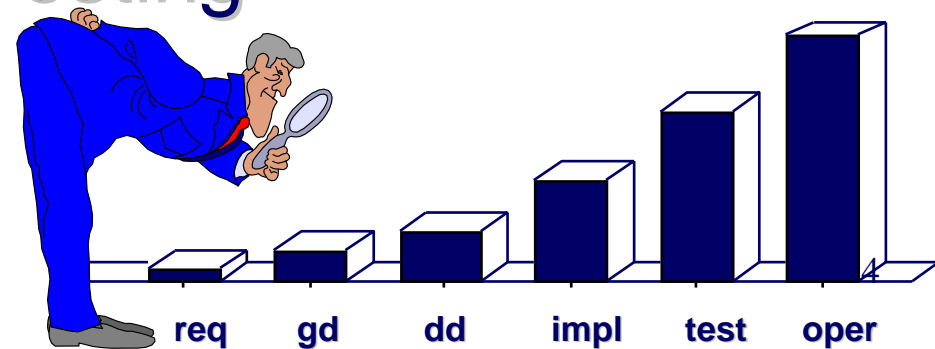
Level 3 : Integration

Institutionalization



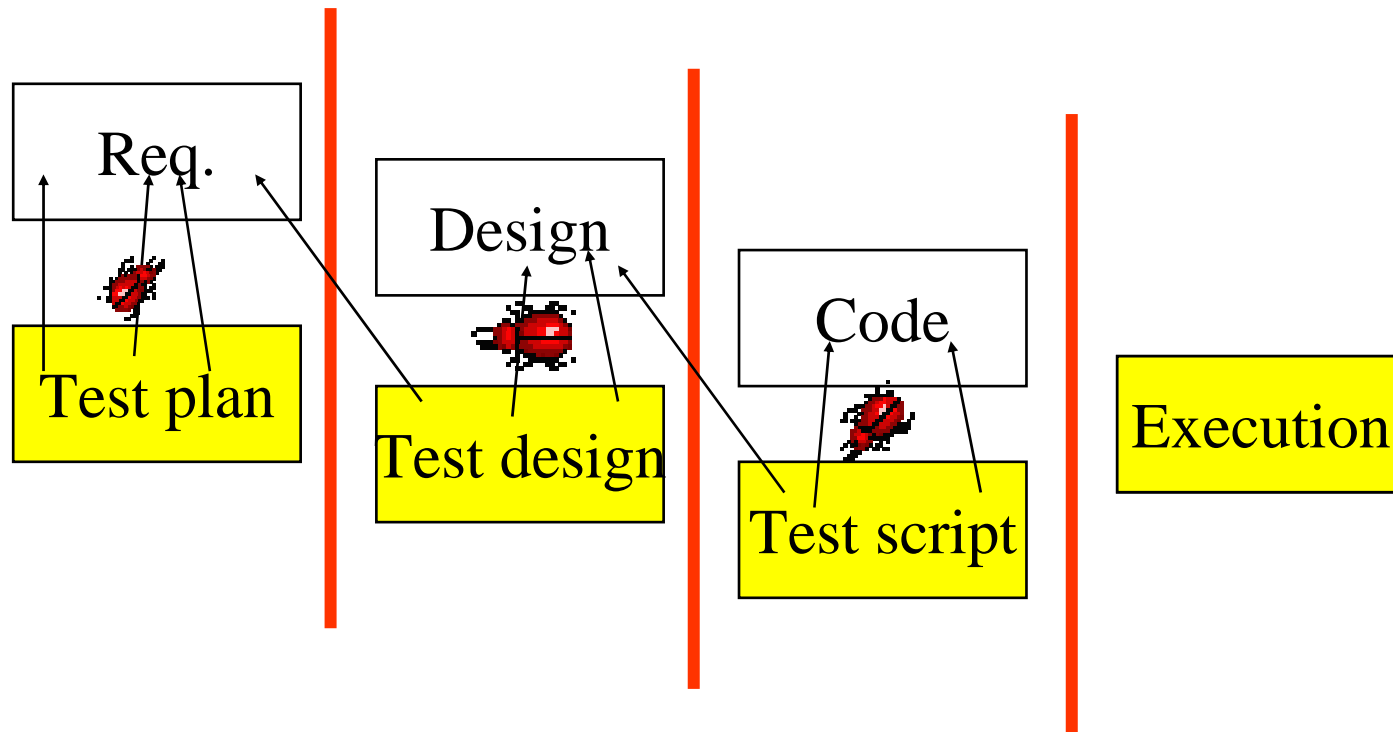
organisational
process areas

- Test Organization
- Test Training Program
- Test Life cycle and Integration
- Non-Functional Testing
- Peer Reviews



IMPROVE
Quality Services

Life cycle



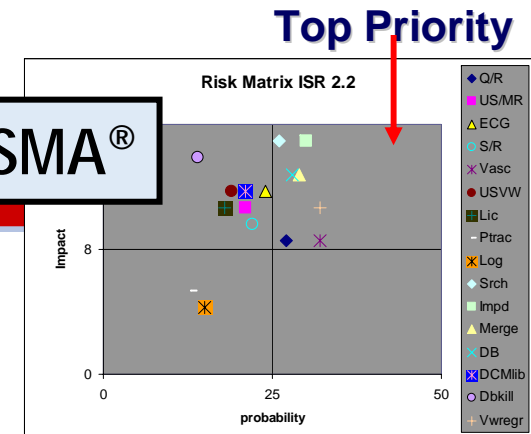
Test Improvements



*engineering
view*

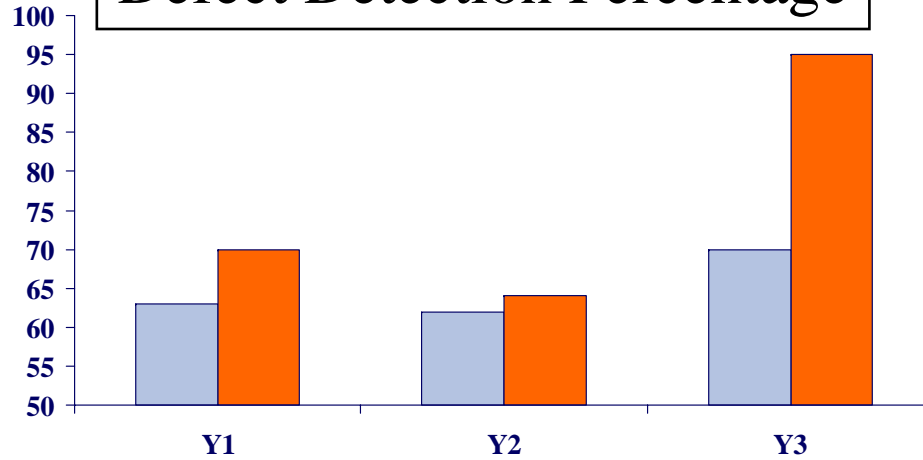
- Testing as a profession
- Clear responsibilities
- Test plan(ning)
- Risk-based testing
- Testing part of development life cycle
- Early involvement
- Test design techniques
- Controlled test process

PRISMA®

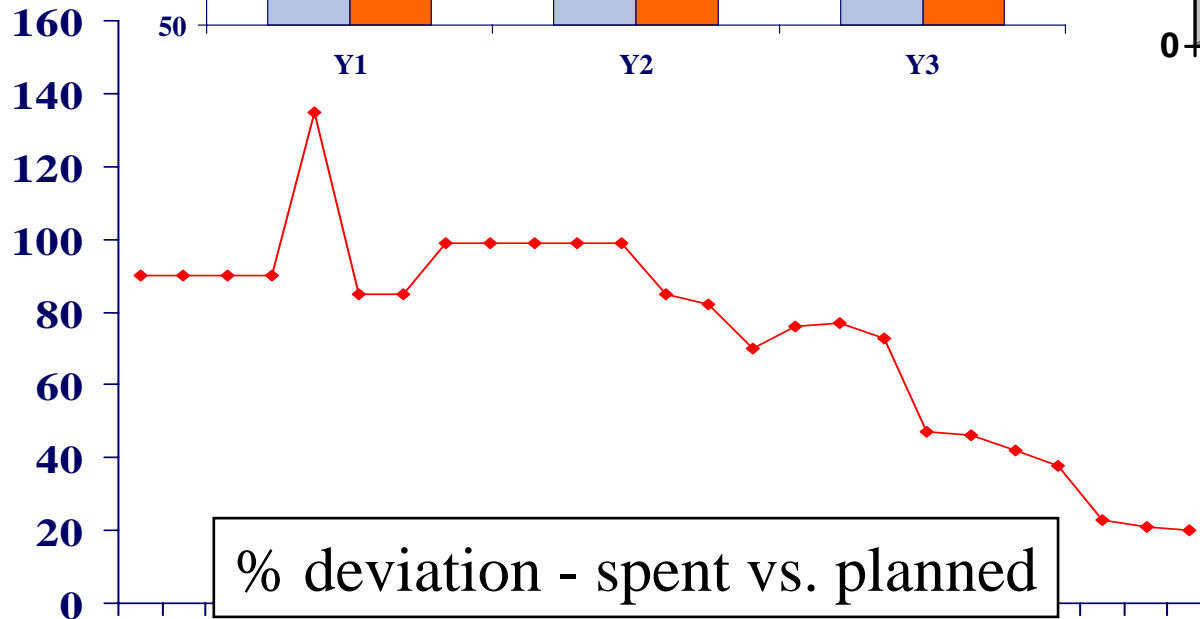
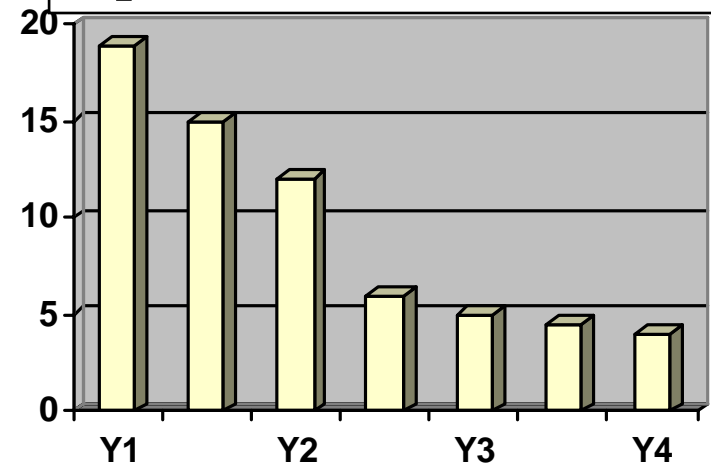


Reported Results

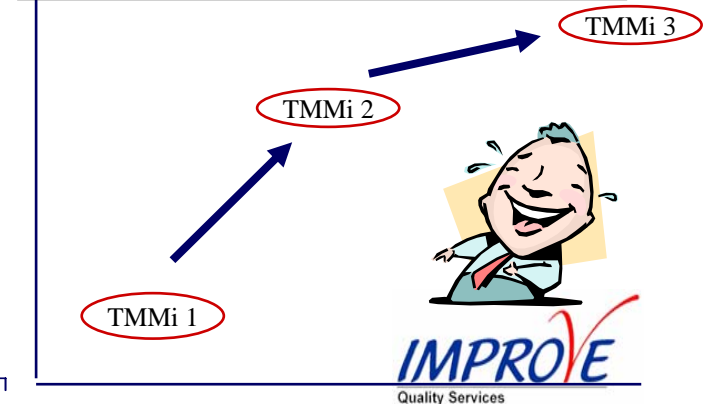
Defect Detection Percentage



alpha / beta test lead time



Employee satisfaction



“Getting Started”



- 1
 - Test policy
 - Management commitment
- 2
 - Improvement is a project
 - Resources and effort percentage
- 3
 - Maturity of development organization

“Getting the job done”

- Set both long term and short term goals
- Use what is available
- Don't make an external consultant responsible
- Institutionalize the improvements
- Change management skills
- Review against the overall objectives (policy) almost continuously



Test Improvement Manifesto

Making TMMi work ■

- **Flexibility** over Detailed Processes
- **Best Practices** over Templates
- **Deployment orientation** over Process orientation
- **Reviews** over Quality Assurance (departments)
- **Business driven** over Model driven

TMMi Supporting Organizations

Experimentus
excellence in software quality management

ins!ght
your partner in software quality

AppLabs

Thank You !!



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More information on TMMi
available at www.TMMiFoundation.org

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